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Communicating with Warmth in Distributive Negotiations Is Surprisingly Counterproductive

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Abstract. When entering into a negotiation, individuals have the choice to enact a variety of communication styles. We test the differential impact of being "warm and friendly" versus "tough and firm" in a distributive negotiation when first offers are held constant and concession patterns are tracked. We train a natural language processing algorithm to precisely quantify the difference between how people enact warm and friendly versus tough and firm communication styles. We find that the two styles differ primarily in length and their expressions of politeness (Study 1). Negotiators with a tough and firm communication style achieved better economic outcomes than negotiators with a warm and friendly communication style in both a field experiment (Study 2) and a laboratory experiment (Study 3). This was driven by the fact that offers delivered in tough and firm language elicited more favorable counteroffers. We further find that the counterparts of warm and friendly versus tough and firm negotiators did not report different levels of satisfaction or enjoyment of their interactions (Study 3). Finally, we document that individuals' lay beliefs are in direct opposition to our findings: participants believe that authors of warmly worded negotiation offers will be better liked and will achieve better economic outcomes (Study 4).

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> Hey, I'm a good guy; you're a good guy. Any chance I could get a, you know,—a "good guy discount"? (Calhoun 2014).

Introduction

When entering into a negotiation, individuals face many choices about how to achieve success. Negotiation scholars advise that parties need to be clear on the economic parameters of their bargaining behavior, including their reservation price, target value, and first offer (Wheeler 2002, Malhotra and Bazerman 2008, Thompson 2009). The second order of business, which negotiators often have more flexibility over, is choosing the communication style that they wish to enact to achieve their desired aims. Some people may believe that being warm and ingratiating will inspire their counterparts to reciprocate, making the entire interaction more congenial (Gouldner 1960, Cialdini 1993). Indeed, they may even hope that a particularly congenial interaction will lead the other side to make specific economic concessions. This is the logic memorialized in *This American Life's* radio essay titled "Good Guys," wherein producers Ben Calhoun and Ira Glass test the efficacy of appealing to salespeople with warm camaraderie in hopes of obtaining a "good guy discount" (Calhoun 2014). Conversely, others may believe that using tough and firm language is more likely to showcase their resolve and extract greater concessions, with minimal, or at least tolerable, interpersonal penalties.

In this research, we systematically investigate the efficacy of a communication style characterized primarily by warmth or toughness in the context of distributive negotiations. We report the results of both laboratory and field experiments that enable us to observe the effects of communication style on consequential real-world behavior as well as carefully track the enactment of that style in a fully recorded laboratory negotiation. We build a natural language processing algorithm to quantify and detect warmth in written language. The algorithm enables us to understand how lay participants enact and respond to warmth, and it is a tool that we make available for future scholars. Finally, we compare our empirical findings with the lay beliefs that individuals hold to understand whether negotiators have the correct insight about when and how to strategically communicate warmth to achieve their economic goals.

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We conceptualize negotiation behavior as consisting of two components: economic and noneconomic actions directed at one's counterpart. The economic behavior of each negotiator is instantiated by the offers and concessions made in the course of the negotiation. Prior work has extensively studied the importance of these numerical aspects in affecting outcomes (e.g., Galinsky and Mussweiler 2001, Galinsky et al. 2005, Mason et al. 2013, Ames and Mason 2015). Noneconomic behavior includes other aspects of the interaction including body language, tone, and word choice, such as framing and use of rationales (e.g., Rubin et al. 1980, Maaravi et al. 2011, Bowles and Babcock 2013, Trötschel et al. 2015, Lee and Ames 2017). These noneconomic aspects of negotiation behavior, in turn, can be used strategically to project an overall communication style that is mainly characterized by its warmth or toughness. Because all negotiations involve aspects of both collaboration and competition (Pruitt 1983), one's communication style becomes important for conveying one's intentions with regard to one's counterpart.

We selected "warm and friendly" and "tough and firm" communication styles for our investigation, because based on our negotiation and teaching experience, we believe that these two styles frequently present themselves as competing alternatives for the manner in which one might interact with a counterpart. Furthermore, although warmth and toughness are universal constructs (i.e., most forms of communication can be adjusted to be warmer or tougher), the linguistic markers of warmth are context and situation specific. Our investigation encompasses three aspects of this communication style construct: how it is operationalized in a distributive negotiation; what its effects are on a distributive negotiation; and lay beliefs about how it affects a distributive negotiation.

In this research, we experimentally manipulate the communication style of negotiation participants by instructing them to be warm and friendly or tough and firm in their interactions with their counterpart. We focus explicitly on distributive negotiations to understand the impact of communication style on outcomes above and beyond economic bargaining behavior. The distributive context allows us to keep the size of the bargaining zone identical for all dyads. Furthermore, to isolate the effects of communication style, we require all participants to make identical first offers and track concession patterns. If communication style directly affects economic outcomes, our findings would contribute to emerging work recognizing the importance of how economic offers are delivered during a negotiation, address a gap in prior literature by cleanly testing the effect of negotiation style while controlling for economic bargaining behavior, and provide additional insight into the consequences of social perceptions of warmth in a negotiation context.

Prior Theorizing on Effects of Communication Style on Negotiation Outcomes

Negotiations represent a broad class of professional and personal interactions. In each of those interactions, participants make choices as to what kind of communication style to deploy. Negotiation students often report a tension between projecting a warm and friendly communication style versus a tough and firm one, and the myriad recent publications for both academic and professional audiences (e.g., De Dreu et al. 2000, Shapiro 2001, Thompson 2009, O'Hara 2015) confirm that this tension remains a topic of concern. However, theories across economics, psychology, and management make conflicting predictions with regard to the effects of communication style on interpersonal and performance outcomes.

Specifically, classical economics would predict that distributive negotiation outcomes are determined by bargaining behavior, such as the parameters of the bargaining zone and one's market alternatives. In this model, communication style is essentially a form of "cheap talk" and has little influence when the two parties' interests are at odds (Crawford and Sobel 1982, Farrell and Rabin 1996). Anyone can choose whether to communicate in a more or less warm style, completely independent of the bargaining zone or available alternatives, and do this at little or no cost to the self. To the extent that negotiators understand this to be the case, there remains little room for any stylistic factors to determine final outcomes.

However, there are also psychological models of social interactions that offer different predictions. The "norm of reciprocity" dictates the relatively straightforward idea that "you should give benefits to those who give you benefits" (Gouldner 1960). Cialdini (1993) has shown how important this idea of reciprocity is in governing our interactions with others, including how we ask for favors, make requests, and demand compliance. Reciprocity is theorized to be based on principles of exchange so that, when A benefits B, B feels obligated to restore the inequity by reciprocating with equally generous behavior toward A (Gouldner 1960, Homans 1961, Adams 1965). Although the original theory of reciprocity was based on benefits that one provided to another, to the extent that a negotiator being warm and friendly in his or her communication style is seen as generous behavior enacted for the counterpart's benefit, the theory would predict that the counterpart would reciprocate, rewarding warmth with warmth (Gouldner 1960, Cialdini 1993).

In a related research tradition, management research on conflict communication has found that collaborative rather than contentious communication is associated with positive organizational outcomes (Gallupe

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et al. 1991, Mintzberg et al. 1996, Lovelace et al. 2001). Collaborative communications are more helpful and problem solving in orientation, and in contrast to contentious communication, they allow for individuals to express task-related doubts freely, all of which lead to increased problem solving, task performance, and innovation (Lovelace et al. 2001).

These predictions, however, may be at odds with work on social perceptions of "warmth" and "competence" (Wojciszke 2005, Abele and Wojciske 2007, Fiske et al. 2007) in social psychology and in particular, the "compensation effect." Several studies in this literature suggest that the two dimensions of warmth and competence are negatively correlated in social evaluations (Judd et al. 2005, Yzerbyt et al. 2008, Kervyn et al. 2009). Thus, in forming impressions of others, individuals have been shown to characterize a majority of social groups and persons as high on one of these dimensions and low on the other (Judd et al. 2005, Yzerbyt et al. 2008, Kervyn et al. 2009). This compensation effect emerges most reliably when individuals are making a comparative judgment between a pair of targets (Judd et al. 2005). Furthermore, people seem to be aware of this effect and actively manage the impressions that they make to emphasize one dimension or the other (Holoien and Fiske 2013). Perceptions of warmth can also invite exploitation from others (Barasch et al. 2014). Based on this theory then, warm and friendly negotiators might be considered less competent (especially when implicitly compared with the self), ostensibly leading to less favorable outcomes.

In summary, whereas classic economics predicts that a warmer communication style will have no effect on negotiation outcomes, prior work on the theory of reciprocity, managerial conflict communication, and the compensatory effect of warmth and competence makes conflicting predictions on how the outcome will be affected. This poses a dilemma for negotiators. To achieve the most advantageous negotiation outcome, should one strive to come across as warm and friendly or tough and firm, all other factors being equal?

Prior Related Negotiations Research

Negotiations researchers and practitioners have long pitted the efficacy of cooperative versus competitive strategies against each other and extolled the virtues of embracing a cooperative approach for accomplishing negotiation goals (De Dreu et al. 2000). Dyads composed of individuals driven by cooperative motives (e.g., De Dreu and Boles 1998) have been shown to achieve higher joint outcomes through the discovery and use of integrative potential (Pruitt and Lewis 1975, De Dreu et al. 2000). Such cooperative negotiators develop trust, positive attitudes, and perceptions, and they engage in constructive information exchange, which can lead to more problem solving and less contentious behavior (Weingart et al. 1993, De Dreu et al. 1998). However, competitive negotiators might develop distrust, hostile attitudes, and negative interpersonal perceptions, which hinder integrative negotiations by driving out opportunities to problem solve, inhibiting motivations to listen and collect essential information, and driving overconfidence associated with an unwillingness to concede (De Dreu et al. 2000).

The logic and conclusions of this research have permeated into the popular and professional press. For example, Shapiro (2001), the legendary sports agent and founder of the Shapiro Negotiation Institute, has devoted an entire book to this subject titled *The Power of Nice: How to Negotiate So Everyone Wins-Especially You!*. Relatedly, a similar set of ideas was discussed recently in a *Harvard Business Review* article aptly titled "How to negotiate nicely without being a pushover" (O'Hara 2015), suggesting that "negotiating nicely" is a goal to be aspired to.

However, a closer look at the literature reveals that the answer is not as simple as it initially seems for several reasons. Research manipulating communication style or related constructs did not focus on testing noneconomic behavior while carefully controlling for economic behavior. This often happened, because participants in prior research who were experimentally manipulated to act cooperatively were also free to make different offers and concessions (e.g., De Dreu et al. 2000). Thus, it is unclear whether documented outcomes were driven by differences in communication style or the related differences in economic behavior. For example, a cooperative orientation has commonly been manipulated through instruction to consider the interests of the counterpart (compared with a sole focus on self-interest) or expect a future cooperative interaction (versus a future individual task) or incentives to maximize joint outcomes (as opposed to individual outcomes) (Pruitt and Lewis 1975; Ben-Yoav and Pruitt 1984; Weingart et al. 1993; De Dreu et al. 1998, 2000). These instructions not only do not restrict economic behavior, but also, they invite participants to change their economic behavior to align with their manipulated orientation goals (De Dreu et al. 2000).

Furthermore, the majority of this research has been conducted in *integrative* negotiation settings (Lax and Sebenius 1986, Pruitt and Lewis 1975, Fisher et al. 2011), a fundamental feature of which is that negotiation value is not fixed and that the "pie of resources" can be expanded. Pleasant rapport should (and does) lead to greater information exchange, allowing parties to "expand the pie" and find more mutually beneficial solutions (Pruitt and Lewis 1975, De Dreu et al. 2000). However, a competitive approach or even a reputation for being a distributive negotiator adept at value claiming can lead to distrust from the counterpart and withholding of information, and therefore, it could result in suboptimal outcomes (Tinsley et al. 2002). Thus, an important consequence of

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studying the effects of communication style in integrative settings is that it is impossible to disentangle the effects of simply acting in a cooperative manner from economic behavior as manifested in the offers and counteroffers made by the negotiators, because a cooperative style enables parties to engage in a fundamentally different pattern of offers and counteroffers.

Furthermore, because most prior studies manipulated orientation at the dyad level and focused on joint outcomes as the primary dependent variable, the question of who benefitted individually from a particular communication style remains open (Pruitt and Lewis 1975; Ben-Yoav and Pruitt 1984; Weingart et al. 1993; De Dreu et al. 1998, 2000). For example, in many prior examinations of the benefits of a particular negotiation strategy, both participants in any given dyad received the same instructions to be cooperative or competitive (De Dreu et al. 2000). These studies generally found that homogenously cooperative dyads created greater value than homogenously competitive dyads (De Dreu et al. 2000). However, in the world outside of the research laboratory, negotiators can rarely be confident about whether their counterpart has cooperative or competitive intentions.

In this work, we explicitly focus on the effects of noneconomic communication style by manipulating whether participants communicate in a warm and friendly versus tough and firm manner while also instructing all participants to make *identical* first offers and keeping track of concession patterns. Furthermore, we conduct our studies in explicitly distributive contexts to ensure that our effects are not driven by the fact that a particular communication style changes the economics of the bargaining situation, such as might happen in integrative contexts. We focus our investigation on the individual-level consequences of adopting a particular communication style by manipulating the style of one party and allowing the other party to respond freely in an authentic manner. We then compare the individual outcomes of the negotiators whose communication style was manipulated across dyads.

It is important to highlight that our focus on distributive negotiations is of both theoretical and applied importance. On the theoretical side, because integrative negotiations rest on the ability of parties to create joint gains through trust building and information exchange, there is no way to cleanly separate economic from noneconomic behavior in this context. Thus, a distributive context is crucial to detect the effect of one without the other. On the practical side, although scholars argue that most distributive settings can and should be converted into integrative ones, there remains a question of the contexts wherein this is simply not worth the effort: for example, one-time, single-issue negotiations with unfamiliar counterparts. Thus, we believe that distributive negotiations are an important area of inquiry in their own right, and scholars should carefully attend to these settings.

Distributive Negotiations

Within the research on distributive negotiations, there is scattered evidence that individual differences related to warmth lead to less successful outcomes. Negotiators high in trait agreeableness were shown to do well in integrative settings but poorly in distributive ones when their agreeableness became a liability (Barry and Friedman 1998). Similarly, negotiators who were more likely to adopt cooperative strategies in a salary negotiation achieved lower salary gains compared with negotiators who used competitive approaches (Marks and Harold 2011).

Relatedly, the literature on emotional displays in distributive contexts reports conflicting results. Expressing anger has been shown to sometimes help or hurt outcomes depending on the counterpart's perception of the source and validity of the expressed anger (Pillutla and Murnighan 1996, Allred et al. 1997, Van Kleef et al. 2004, Kopelman et al. 2006, Sinaceur and Tiedens 2006, Van Kleef and Côté 2007). Although this research has taken a similar approach to that utilized in this manuscript, by examining the effect of emotion and controlling for economic bargaining behavior, the results are mostly found in one-shot paradigms and also highly dependent on important moderators (Pillutla and Murnighan 1996, Van Kleef et al. 2004, Kopelman et al. 2006, Sinaceur and Tiedens 2006, Van Kleef and Côté 2007). Recent research focusing specifically on affective displays in electronic communication found that negotiators who expressed anger in a continuous negotiation achieved higher individual outcomes than negotiators who expressed happiness (Belkin et al. 2013). Although this paper showed the important signaling feature of affective displays in electronic negotiations, given that economic behavior was not tracked, it remains unclear to what extent outcomes were determined by the displayer acting economically differently because of the manipulation versus the recipient reacting economically differently to the affective displays (Belkin et al. 2013).

Defining and Measuring a Warm Communication Style

In this work, we develop a natural language processing algorithm to quantify warm communication style in written text. This algorithm helps define our construct by identifying the linguistic features (e.g., specific words, phrases, and categories of phrases) associated with the speaker's communication style. Our work builds off existing computational markers of politeness and respect in other contexts (Danescu-Niculescu-Mizil et al. 2013, Voigt et al. 2017). This algorithm accomplishes four goals—it confirms that our manipulated participants

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shared an intuitive understanding of our construct; it reveals precisely what that understanding is; it allows us to measure our construct in unmanipulated participants; and it provides prescriptive direction for future negotiators.

Although we determine the weights that the algorithm assigns to each feature empirically, we curate the initial list of features from the long linguistics literature on politeness. In this framework, politeness is a universal dimension of human communication common to all cultures and one that can be intentionally manipulated by communicators in all kinds of interactions to navigate the social hierarchy (Lakoff 1973, Bates 1976, Clark and Schunk 1980, Walters 1980, Carrell and Konneker 1981, Fraser and Nolen 1981, Hill et al. 1986, Brown and Levinson 1987). Politeness can often be conveyed in many linguistic features of social coordination as a signal meant to be detected—and often reciprocated—by its audience. However, that signal can also vary in accord with the social context and the speaker's and listener's goals. Here, we use machine learning methods to consider a range of plausible markers of our construct as suggested by previous research in related domains.

Of particular importance to our investigation is the well-documented negative relationship between politeness and power (Brown and Levinson 1987). Power is the capacity to control one's own and other's resources and outcomes, and it is seen as essentially the inverse of dependence (Kelley and Thibaut 1978, Bacharach and Lawler 1981, Fiske 1993, Keltner et al. 2003). Prior research has shown that, as individuals become more powerful, they are less likely to use polite language (Brown and Levinson 1987, Danescu-Niculescu-Mizil et al. 2013). The inverse relationship between power and politeness usage has been repeatedly documented by linguists, anthropologists, and organizational scholars (Kipnis et al. 1980, Morand 1996, Andersson and Pearson 1999, Rogers and Lee-Wong 2003, Watts 2003, Holmes and Schnurr 2005), but we are unaware of any experimental work on the effect of politeness on negotiation outcomes.

In contrast to resource power, which may remain ambiguous and unknowable by the counterpart during a negotiation (Komter 1989), dominance can be signaled irrespective of actual resource allocation through physical cues, mimicry, tone, and emotional displays (Keltner and Haidt 1999). Interpersonal dominance is defined as the expressive, relationally based communicative act by which power is exerted and influence achieved (Dunbar and Burgoon 2005). Displaying negative affect during a negotiation can be perceived as a signal of greater dominance compared with positive affect, leading to greater concessionary behavior from the counterpart (Sinaceur and Tiedens 2006, Belkin et al. 2013). Based on the literature cited above, it seems plausible that a warm and friendly communication style characterized by high levels of politeness may be perceived as low in dominance and a signal of low resource power (Bacharach and Lawler 1981). Increased politeness may thereby result in less favorable negotiation outcomes given that it signals the polite negotiator's dependence on the counterpart to satisfy his or her negotiation goals (Zander and Forward 1968, Anderson and Berdahl 2002, Galinsky et al. 2003, Keltner et al. 2003, Magee et al. 2007).

Research Overview

In this research, we begin a systematic investigation of the effects of communication style on negotiation outcomes, controlling for economic bargaining behavior. The dissonant predictions regarding the merits of taking on a warm and friendly versus tough and firm communication style can be, to some extent, explained and reconciled by recognizing that communication style can affect several different outcomes. A negotiator's communication style might affect (1) his or her counterpart's explicit evaluations of the negotiator's personal qualities, such as warmth and competence; (2) the communication style that the counterpart deploys in response; (3) the negotiator's own economic behavior (e.g., subsequent offers and concessions); and/or (4) the counterpart's economic behavior deployed in response.

Across four experiments[1] and with the aid of our natural language processing algorithm, we document that individuals instructed to take on a warm and friendly versus tough and firm communication style do so by varying the level of politeness in their communication (Studies 1 and 3). This, in turn, leads to a paradoxical effect: although warm and friendly negotiators receive warm and friendly replies in return, they achieve less favorable economic outcomes (Studies 2 and 3). This does not happen because the negotiators whose communication style that we manipulated are more willing to concede to their partners. Rather, this happens as recipients react economically differently to the warm and friendly versus tough and firm communication styles (Studies 2 and 3). We theorize that this is driven by the fact that politeness is perceived as low dominance and therefore, signals the polite negotiator's lower power and higher dependence on the counterpart to satisfy his or her negotiation goals (Cansler and Stiles 1981, Baxter 1985, Blum-Kulka et al. 1985, Holtgraves et al. 1989). Thus, warmth leads to a more congenial interaction at an economic cost. Finally, we examine the lay theories that individuals hold with regard to the ideal communication style (Studies 1 and 4). We find that individuals consistently mispredict the consequences of being warm and friendly and even under incentivized conditions, expect this approach to lead to better economic outcomes, which is in direct contrast to our empirical findings.

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Study 1

We designed Study 1 to gain insight into the distinctive linguistic elements of different communication styles. We instructed subjects that a particular style—either warm and friendly or tough and firm—was the most effective negotiation strategy and asked them to write a hypothetical offer message to an online seller in the assigned style (while keeping the offer amount constant). The written text of these messages was our primary outcome measure in this study. The text was parsed to extract features related to politeness and respect based on the previous literature (Danescu-Niculescu-Mizil et al. 2013, Voigt et al. 2017), allowing us to empirically validate the relationship between these features and our construct. That is, the linguistic differences between the two groups of participants allowed us to create an explicit behavioral measure of communication style.

Method

Participants. We recruited participants on Amazon's Mechanical Turk (n = 401; M_{age} = 34.93 years old; standard deviation (SD) = 11.91 years; 51% male) to participate in a brief negotiation simulation in exchange for $0.50. Our intended sample size, based on prior pretesting, was n = 400. Eighty-one participants failed to pass a basic attention check and were excluded from participating in the study. Twenty-five participants failed to complete the study. The 401 participants referenced above completed the entire survey, including an attention check, the main task, and the demographic questions. We eliminated 46 participants from analysis, because they failed to follow directions to offer $115 by either offering a different amount (23 of 46 participants) or not offering any amount at all (23 of 46 participants). All participants were instructed to offer $115 for the hypothetical item, and any participants who offered a different amount or did not mention an offer amount were eliminated, because it was critical to our analysis that the economic value of all messages was constant. Thirty participants assigned to the warm and friendly condition failed to follow instructions to offer $115, which was significantly greater than the 16 participants who failed to offer $115 in the tough and firm condition: $\chi^2(1) = 4.73$; $p = 0.030$. We did not anticipate that warm and friendly writers would disproportionately fail to follow instructions; however, we repeated all of our analyses including nonstandard offer amounts, and our conclusions are substantively unchanged. The results reported here focus on those who did follow instructions, as we had planned, and that sample consists of $n = 355$, $M_{age} = 34.41$ years old, SD = 11.23 years, and 51% male.

Design and Procedure. We instructed all participants to imagine that they were interested in purchasing a used iPhone on the popular online marketplace Craigslist.com. Participants imagined that they were tasked to purchase the phone for work, with a maximum budget of $115. We showed participants a Craigslist posting for the exact phone that they were looking for listed for $155 (see Figure A.1). We told participants that they had been looking for this phone for a long time and were very excited to buy it, although they would have to receive a discount to stay within their budget.

Participants' primary task in the study was to compose a message (three to five sentences in length) to the iPhone seller to persuade him or her to sell the phone at the desired discounted price. We randomly assigned participants to one of two conditions—warm and friendly or tough and firm—that determined which communication style we asked them to enact. Warm and friendly buyers were told that negotiation research shows that being warm and friendly results in better deals, whereas tough and firm buyers were told that negotiation research shows that being tough and firm results in better deals. To ensure that warm and friendly and tough and firm participants did not also differ in their economic behavior, we asked participants in both conditions to offer the seller $115 for the phone. Participants in both conditions then composed their message to the seller in a text box, with no limits on time or length.

After participants completed their message, we asked them to report how the message that they had just composed would compare in terms of communication style with a message that they would have written with no specific instructions. Participants reported this comparison using a five-point scale labeled "much nicer," "slightly nicer," "about the same," slightly tougher," and "much tougher." Furthermore, we asked participants about the frequency with which they buy and sell items using online forums similar to Craigslist.com using a six-point scale labeled "never," "once a year or less," "a few times a year," "monthly," "several times a month," and "several times a week." Finally, we collected demographic information.

Natural Language Processing. The primary outcomes from this study were the messages that participants wrote. We wanted to know that our theoretical construct was successfully manipulated by the instructions we gave—that is, whether the condition of each message was *distinctive* in the text itself. This would confirm that our instructions were consistently interpreted and easy to implement. Distinctiveness in the text would also allow us to train a machine learning model to *detect* the same construct in other text data. Finally, we want to know how the messages differed from one another as a qualitative exercise to interpret how our construct is implemented in natural language.

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Like any open-ended text data, these messages varied along many dimensions (Jurafsky and Martin 2009, Grimmer and Stewart 2013). Furthermore, based on our theoretical construct, we expected our manipulation to affect many linguistic choices throughout each message in parallel. This presents an empirical challenge to a researcher who wants to condense that high-dimensional data into a measure for a single construct of interest.

Here, we combine methods to model our construct using both theory-driven and empirical principles. We tally a wide set of plausible linguistic markers that might be important for distinguishing warmth and/or toughness in natural language. In particular, we draw from recent efforts that used word and part-of-speech features to identify politeness and respect in other conversational contexts (Danescu-Niculescu-Mizil et al. 2013, Voigt et al. 2017) (see full list Table B.1). Many features are intuitive and common in academic conceptions of politeness (e.g., formal graces, such as "please," "thank you," "hello," "goodbye," and so on). Other kinds of linguistic features included affectively laden content (e.g., positive and negative emotional words and swearing), markers of directness (e.g., bare commands), and indirectness (e.g., subjunctive requests and hedges) as well as self- and other-focused words and phrases (e.g., personal pronouns). We wrote software in R to extract these feature counts from every message, borrowing the SpaCy library for dependency parsing and part-of-speech tagging (Honnibal and Johnson 2015). This software is free and publicly available as an R package for any future research (Yeomans et al. 2018). This package is also open source so that our analyses are transparent to readers—in fact, the exact data from this paper are included in the package as reproducible examples.

Results

We repeated our analyses on both the full sample of participants who completed the survey as well as on the sample of 355 participants who followed directions in offering \$115. We find no difference in the direction or significance of our results. Below, we report the results based on the sample of participants who followed directions.

Structured Responses. Participants' assigned communication style had a clear effect on the language in their message. Participants in the tough and firm condition reported that their written message was not as nice as the message they would have written with no instructions ($M_{\text{tough}} = 2.30$; SD = 1.05). By contrast, those in the warm and friendly condition reported that, on average, their written message was similar in tone to a message that they would write freely ($M_{\text{warm}} = 3.04$; SD = 0.59; $t(353) = 8.00$; $p < 0.001$). A nonparametric test revealed the same results.[2] The difference between conditions was most pronounced in the number of people who used the midpoint of the five-item scale, indicating that their own message would stylistically be "about the same" as the one that they were instructed to write—fully 74% of warm and friendly buyers chose this option versus only 30% of tough and firm buyers ($\chi^2(1) = 66.36$; $p < 0.001$). In other words, the warm and friendly approach was more in line with the communication style that participants would spontaneously take in a negotiation context.

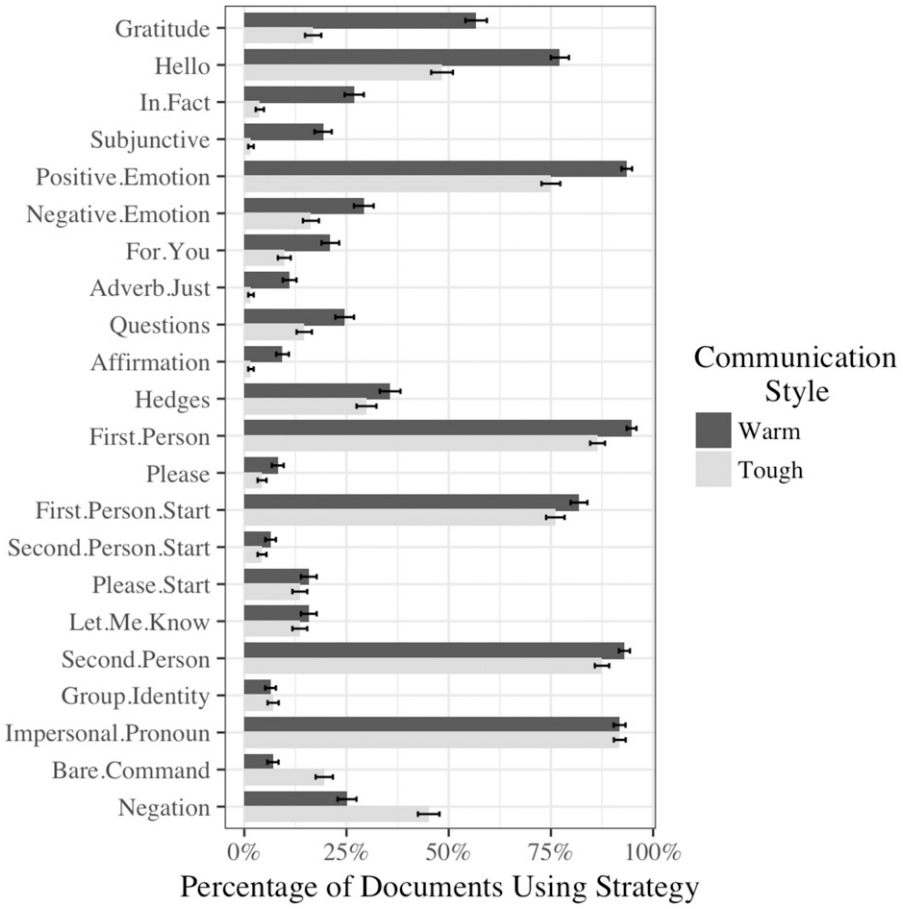
Message Text. Overall, participants took similar amounts of time in the warm and friendly condition ($M_{\text{warm}} = 46.67$ s; SD = 48.32) as in the tough and firm condition to compose their messages ($M_{\text{tough}} = 52.41$; SD = 67.53; $t(353) = 0.92$; $p = 0.361$). However, participants did write more in the warm and friendly condition ($M_{\text{warm}} = 52.96$ words; SD = 24.34) than in the tough and firm condition ($M_{\text{tough}} = 37.90$ words; SD = 18.58; $t(353) = 6.60$; $p < 0.001$). In general, toughness was associated with brevity, but word count was not a particularly distinctive marker of the two conditions. Using area under the curve (AUC) as a metric for evaluating predictive accuracy, we find that word count as a sole predictor had an AUC of 0.691 (95% confidence interval (95% CI) = 0.634–0.746). In other words, for any random pairing of one warm and friendly message and one tough and firm message, we would expect the longer of those two messages to be the warm and friendly one 69% of the time on average. This is a modest benchmark for our richer feature set.

We then applied our feature set extraction algorithm to the message data. That is, we counted up the number of times that each feature was present in each document. For example, the "Subjunctive" feature indicated how often the phrases "could you" or "would you" appeared in each message. Many features were found throughout the data, although some were obviously not useful—for example, almost no one apologized in their messages, because they were conversation starters and there was little reason to apologize. In Figure 1, we include every feature that was present in at least 5% of all messages and report the percentage of messages in each condition that used each feature at least once. Many of the most distinctive features were intuitive—tough and firm buyers contradicted statements made by the sellers more frequently and made more bare commands, whereas warm and friendly buyers were more likely to say "hello," express gratitude, make more indirect requests and statements, and use more qualifying language. This graph provides evidence that our model of communication style maps onto our colloquial understanding of the construct.

To provide additional validation, we trained a machine learning algorithm to detect the communication style of an offer. Specifically, we trained a supervised

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Figure 1. Prevalence Counts of Politeness and Respect Features in Study 1



Notes. The *x* axis represents the percentage of messages that used a feature at least once, and all features used in at least 5% of all messages are shown here. The vertical order is determined by the variance-weighted log odds ratio of a feature with respect to condition. Error bars show the standard error of the mean for each cell.

learning algorithm to use the counts from the assembled feature set to use the features to infer the ground truth, which in this case, is the condition to which the writer was assigned. The accuracy of the model was evaluated using a "nested cross-validation" procedure (Stone 1974, Varma and Simon 2006). That is, we randomly held out 1/10th of the data set and used the other 9/10ths to train a model to generate predictions for the held-out 1/10th. We repeat this over all 10 "folds" of the data set and then cycle through this entire procedure five times to smooth out prediction error. We used a relatively simple supervised learning algorithm, the LASSO, to estimate the model for each fold (Tibshirani 1996, Friedman et al. 2010).

The results of this exercise were encouraging. The accuracy of the prediction model trained on our feature set was high (AUC = 0.876; 95% CI = 0.841–0.911). This was much higher than the simple model that only used word count to make predictions. We also performed the same cross-validation exercise with a brute force feature set that simply tallied all 1,723 one-, two-, and three-word phrases that occurred in at least 1% of all messages (Benoit and Nulty 2016). This "bag-of-ngrams" approach also performed well (AUC = 0.895; 95% CI = 0.862–0.928) and again, did not fully distinguish every single document, suggesting that the curated set of politeness features was capturing almost all of the meaningful variance across conditions. This gave us confidence that our politeness detection feature set was an effective distillation of the most distinctive linguistic markers for our construct and would be effective for classifying natural text in other settings.

Discussion

Study 1 enables us to document the fact that individuals readily understand and are able to enact the two communication styles that we are investigating. This was the case even when participants were responding to the same stimulus, limited to written communication, and constrained to offer identical monetary amounts. Unlike prior research in which financial offers were often allowed to vary with communication style, we observe that individuals are able to vary one without the other.

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Our participants enacted our instructions clearly and consistently. The linguistic choices that warm and friendly buyers made were quite different from the choices of the tough and firm buyers. These differences were well captured by previous research on the linguistic constructs of politeness and respect. We used a machine learning algorithm to discover how these theoretically driven features can be best applied in our domain of distributive negotiations. This methodology can be repeated in a variety of other domains by future researchers, especially in text-dependent interactions, such as digital trace data from online platforms.

For the remainder of the paper, we focus on the consequences of the warm and friendly and tough and firm communication styles on negotiation success. We begin to address these questions in Study 2, where we test the effect of warm and friendly versus tough and firm communication styles in a field context.

Study 2

In Study 2, we conducted an initial test of the effectiveness of warm and friendly versus tough and firm communication styles in distributive negotiations as a natural field experiment. To maximize external validity, we used an audit study design in an active marketplace where price negotiations are common—Craigslist.com. We posed as a buyer, sending messages to individuals selling smartphones while randomly varying the communication style of our initial messages. In all messages, we made offers asking for a discount from the sellers' original price and observed (1) whether that seller was willing to make a counteroffer lower than their original price and (2) how much of that discount would be reflected in the counteroffer.

Method

Participants. Our participants were people who had posted a smartphone for sale within five miles of the center of 15 large metropolitan cities in the United States (full instructions are in Appendix C). A research assistant was trained to browse these listings and select only sellers who met the following criteria: selling a used, unlocked iPhone (6, 7, and SE models only) with little or no damage; not part of a formal business and selling only a single phone; posted their ad within two days of our search; did not request a phone call or text in their message; and did not declare that they would not negotiate in their initial ad.

The research assistant read the search pages of every city on our list, one at a time, over a month in spring 2017, browsing for potential sellers that met our criteria. The research assistant cycled through the list of cities with the caveat that no city was searched more than once in any three-day period so that the stock of available iPhones would have the opportunity to replenish. We initially planned to continue until we had sent 900 messages. However, we did not include all 900 in our analyses based on predetermined exclusion rules. Over the course of the study, 105 messages were erroneously sent to sellers who we had already contacted earlier in the study. There were also 20 messages that were excluded, because we had determined that the sellers fell into one of the restrictions mentioned above (most frequently because the seller was a business or that the phone was still locked). Our results do not change substantively if we include them. The remaining 775 sellers were used as the full sample for the analyses below.

Design and Procedure. We conducted our study by creating a fictitious Gmail account with a gender-neutral name ("Riley Johnson"). This allowed us to send all messages from a constant source that would also track any responses that we received. We created sets of three message templates that used the prototypical warm and friendly and tough and firm features in the messages in Study 1 for a total of six message templates (see Appendix D). We used a block-randomized design so that the order of all 900 messages was determined in advance and every consecutive block of six messages included one of every message from the set. Every message template was adjusted so that the requested discount would be identical across different price points—specifically, each seller was offered 80% of their asking price (rounded up to the nearest $5).

Before we ran this study, we took particular care to consult with and receive approval from our Institutional Review Board to conduct this study ethically in a way that minimized any costs imposed on the participants. The marketplace that we studied—Craigslist.com—is an unmoderated digital message board with no formal means of exchange. Buyers and sellers are expected to explore options over email before eventually meeting in person, and there are few guarantees from initial contact. In our design, we only sent one email to each seller initially, and no reasonable seller would expect that we were committed (which might materially affect his or her marketplace outcome). Furthermore, if we received a response from the seller, we replied with a standard response that read as follows: "Thanks for your reply, but I've decided to buy a different phone." Our research assistant sent this response within 24 hours of receiving the seller's reply; however, if the seller happened to reply multiple times before we sent out our response, all of these replies were included in our analyses (although we did not include any messages sent by sellers after they received the standard response).

All replies were tracked automatically within the Gmail account (both timestamps and the text of the

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messages). Additionally, we saved the web pages for all initial advertisements immediately before sending our message. Given that sellers were responding in open-ended text, we applied a scheme (developed in an earlier pilot study) to categorize their responses to our discount request. Many sellers expressed flexibility on their price, either accepting our offer at face value ("accept") or else proposing a counteroffer somewhere in the range between their posted price and our offer price ("counter"). The remaining sellers did not express any flexibility in their price—either by sending a message turning down our request ("active reject") or else ignoring the request by not replying at all ("passive reject"). In truth, it is not clear whether an active rejection might still allow for more bargaining, and therefore, we treat them conservatively as though they had ignored our message entirely. A research assistant read through these responses (blind to condition) and assigned each seller to one and only one of these categories. In cases where the seller made a counteroffer, the value of this counteroffer was also recorded.

Results

Across all four outcome categories, an omnibus chi-square test indicated that the communication style had a significant effect on outcome ($\chi^2(3) = 18.28$; $p < 0.001$). Across both conditions, we saw similar willingness to acquiesce to our request for a discount. That is, sellers receiving one of our warm and friendly messages were equally likely to give a positive response (31.5%) as sellers receiving one of our tough and firm messages (30.5%; $\chi^2(1) = 0.10$; $p = 0.754$). Interestingly, tough and firm messages elicited more active rejections (24.1%) than warm and friendly messages (14.4%; $\chi^2(1) = 11.62$; $p = 0.001$), whereas warm and friendly messages were more likely to be completely ignored (54.1%) than tough and firm messages (45.4%; $\chi^2(1) = 5.78$, $p = 0.016$). Also, when the two forms of rejection are collapsed into a single category, the omnibus chi-square test is still significant ($\chi^2(2) = 6.03$; $p = 0.049$).

For the sellers who were willing to offer a discount, we controlled for the fact that some phones (and thus, some requested discounts) were larger than others by using a measure that mirrors common models of relative thinking (e.g., Tversky and Kahneman 1981, Thaler 1985). Specifically, we calculated "discount size" as the fraction of the requested discount that was acceded in the seller's response. For example, if the seller's posted price was \$200 and we made an offer of \$160, but they countered with \$190, then that would be a discount size of 0.25. Conversely, if they accepted our offer of \$160, that would be a discount size of 1.0. Comparing across conditions, we received a significantly higher discount size with tough and firm offers ($M_{\text{tough}} = 0.75$; SD = 0.29) than with warm and friendly offers ($M_{\text{warm}} = 0.66$; SD = 0.29; $t(237) = 2.16$; $p = 0.032$). This was primarily driven by a difference in straight acceptances—sellers were somewhat more willing to accept a discount offer at face value when it came from a tough and firm buyer (12.9%) than from a warm and friendly buyer (8.7%; $\chi^2(1) = 3.68$; $p = 0.055$). Because the average phone price in our sample was \$435, these results imply that the extra discount garnered by the tough and firm requests created additional savings of \$35 per phone over and above the results of the warm and friendly requests.

We also wanted to know whether the communication style of the buyer messages affected the sellers' own communication style. To do this, we used the Study 1 data as training data for a machine learning algorithm and generated predictions for the communication style of the sellers' replies. Overall, we found that sellers were indeed more stylistically warm to warm and friendly offer messages than to tough and firm offer messages—this was true whether the analysis includes only replies that agreed to a full or partial discount (AUC = 0.575; 95% CI = 0.503–0.648) or if it includes all replies, including those that reject the discount (AUC = 0.571; 95% CI = 0.514–0.628). Thus, it seems the warm and friendly communication style elicited linguistic reciprocity, even if the economic concessions were greater for tough and firm messages.

Discussion

In Study 2, we use the findings of Study 1 to apply the warm and friendly and tough and firm communication styles in a natural negotiation context to see how recipients of these different message styles would react. We found that, although the message style had no effect on the likelihood of a seller willing to enter into a negotiation, we did find that a tough and firm communication style leads to systematically larger discounts than a warm and friendly communication style. These results provide initial evidence to suggest that the natural communication style of our Study 1 participants, who reported that they would have written warmer messages, is misguided when it comes to receiving a better discount. Instead, a tough and firm communication style seems like it will result in better deals in a distributive negotiation than a warm and friendly style. This counterintuitive result may occur for a number of reasons. Recipients of tough and firm messages may find interacting with their counterpart unpleasant and are, therefore, "cutting to the chase" by offering a larger concession more quickly to minimize interaction time. Alternatively, recipients of warm and friendly messages may perceive their counterparts to be less dominant and therefore, believe that they have the ability to extract greater concessions. However, one limitation of Study 2 is that we only observe one round of bargaining, and we do not know whether the immediate effects of the initial offer would carry through

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to the final negotiated agreement. We address this question by conducting Study 3 in the laboratory and observing the full trajectory of the bargaining process.

Study 3

In Study 3, we continue our investigation by manipulating communication style in a laboratory setting. This approach enables us to observe the entire length of the interaction beyond the first offer. Furthermore, the laboratory methodology allows us to begin answering important questions regarding the psychological process and interpersonal impression formation.

To maintain external validity, we incentivized all participants (both buyers and sellers) based on their negotiation outcome. In this manner, we were able to ensure that buyers deployed their assigned communication style in a way that they truly believed would be effective.

Method

Participants. We recruited participants to the laboratory of a large northeastern United States university ($n = 196$; $M_{age} = 32$ years old; SD = 22 years; 48% male) to take part in a negotiation study in exchange for $10 and a performance-based bonus of up to $2. Our intended sample size was $n = 200$. Based on participant availability, we recruited 196 individuals. These 196 participants were randomly assigned to play the role of a seller or buyer and paired into 98 dyads. The 98 buyers were further randomly assigned to experimental condition so that 49 buyers were assigned to take on a warm and friendly communication style and 49 were assigned to take on a tough and firm communication style using the instructions from Study 1. The sellers received no instructions with regard to their communication style.

We eliminated 28 dyads (56 participants) for one of three reasons. Seventeen dyads experienced a technical problem in the software and were unable to complete the simulation; three dyads failed to follow instructions to negotiate and instead, decided on a final price solely by disclosing their bonus incentives; and eight buyers failed to follow directions to offer $250 for the purchase item in composing their initial message. Eleven of these eliminated dyads had buyers that were assigned to the warm and friendly condition, which was not significantly different than the 17 eliminated dyads that had buyers assigned to the tough and firm condition: $\chi^2(1) = 2.57$; $p = 0.109$. Our final sample consists of $n = 140$, $M_{age} = 32$ years old, SD = 23 years, and 45% male.

Design. All participants negotiated a modified version of the "Sugar Bowl" case (Paulson 2014). In this exercise, one party takes on the role of a seller of antique goods in possession of a unique sugar bowl. The other party is interested in purchasing this sugar bowl to complete a tea set. The negotiation exercise is designed to teach basic distributive tactics, with each party having clearly outlined alternatives and no possibility for value creation (see Appendix E for exact instructions). We used the iDecisionGames online negotiation platform, which enabled us to engage participants in a live negotiation using a chat interface while collecting a series of measures during the course of the interaction.

We offered each participant a performance-based incentive (up to $2 per person) based on the final sale price that they negotiated. Specifically, buyers would earn a bonus of $0.10 for every $10 by which their agreement outperformed a price of $500, whereas sellers would earn a bonus of $0.10 for every $10 by which their price exceeded $300. Participants who did not reach agreement were not eligible for a bonus. Three dyads were unable to reach agreement, one in the warm and friendly condition and two in the tough and firm condition: $\chi^2(1) = 0.55$; $p = 0.456$.

Procedure. After reading the initial instructions, all buyers wrote a message to the seller. To keep the economic value of the first offer constant across both warm and friendly and tough and firm buyers, we instructed all buyers to offer $250 for the sugar bowl. After sellers received this first message, both participants answered questions about their experience thus far. We asked the sellers to report the lowest price for which they would be willing to sell the sugar bowl (their reservation price); report the highest price that they believed the buyer would pay for the sugar bowl (the buyer's reservation price); and rate the buyer on warmth (four items: friendly, well intentioned, trustworthy, and warm; $\alpha = 0.85$) and competence (four items: competent, confident, intelligent, and skillful; $\alpha = 0.78$) measured using five-point scales anchored at "not at all" to "extremely." Buyers also responded to the same measures, predicting how sellers would perceive them.

Participants then had up to 10 minutes to continue their negotiation by freely sending and receiving messages through the chat interface. The platform recorded the content and timestamp of every message. After the negotiation was over, participants indicated the final price that they agreed on or alternatively, if there was no sale, the last price that was offered. We used the message transcripts to confirm these final agreements and analyze the sequence of counteroffers that were made during the bargaining process.

All participants then answered a series of questions about their partner and the negotiation. We asked participants: "How much did you enjoy interacting with this buyer/seller?"; "How satisfied are you with the final negotiated price?"; and "How satisfied are you with how the negotiation went?" The answers were measured using five-point scales anchored at "not at all" to "extremely." We then asked participants: "In

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a future negotiation study where you and another participant negotiate as a team against another team of two participants, how much would you like this buyer/seller to play against/be on your team?" This was also measured using five-point scales anchored at "not at all" to "extremely." After participants completed all measures, we collected demographic information.

Third Party Raters. Finally, we recruited third party raters to evaluate our theorized mechanism—perceived dominance—without interrupting the natural bargaining process between the buyer and seller. Asking negotiators to pause their interaction and deliberately reflect and report on their counterpart's dominance may arguably affect bargaining behavior beyond the natural way in which interpersonal dominance is experienced. Additionally, previous research has found that actors and observers did not differ much in their perceptions of dominance (Burgoon and Newton 1991, Burgoon and Dunbar 2000, Dunbar et al. 2003).

Accordingly, we collected data from a separate sample of third party raters from Amazon's Mechanical Turk ($n = 103$; $M_{age} = 33.15$ years old; SD = 10.07 years; 65% male). These raters read sellers' first messages and evaluated them based on the dominance that they projected in their initial offers. Raters saw 6 randomly drawn messages (3 warm and friendly and 3 tough and firm randomly ordered) from the set of 70 and evaluated each message on eight Likert-scale items that asked how well the message matched various dominance-related trait descriptions (e.g., "dominant" and "assertive" from Tiedens et al. 2007). The eight items were shown in a random order for each message (see Appendix F).

Results

Communication Style. To confirm that buyers were enacting different communication styles in their initial offers, we applied the natural language processing model that we developed in Study 1. We again counted the linguistic markers of politeness and respect in the 70 buyer messages. We used the entire Study 1 data set as training data for a classification model that predicted the assigned communication style of the buyers in the held-out data from Study 3. Once again, the accuracy of that model was high (AUC = 0.890; 95% CI = 0.811–0.969) and comparable with a basic ngram model (AUC = 0.808; 95% CI = 0.706–0.909). The feature counts of these initial offers are given in Figure 2, and they show most of the same communication style markers as in Study 1. The buyers continued to use their assigned communication style throughout the interaction. Taken as a whole, the remainder of the buyers' messages after their initial offer also shared the same linguistic patterns as judged by our algorithm (AUC = 0.749; 95% CI = 0.633–0.865).

The sellers reciprocated the buyers' communication style (see Figure 2). Using the same method as above, we found that the sellers' first responses to warm and friendly offers were distinctively more polite than sellers' first responses to tough and firm offers (AUC = 0.771; 95% CI = 0.660–0.882). This initial reciprocation did not last long into the conversation, and the remainder of their messages during bargaining with warm and friendly buyers were not significantly warmer than with tough and firm buyers (AUC = 0.531; 95% CI = 0.391–0.670). It is not clear how to interpret the decline in warmth from early to later messages (or from buyers to sellers). It is possible that a warm and friendly communication style might only earn some fleeting initial reciprocation. However, speakers may also choose different ways to signal politeness over the course of a negotiation or else take for granted the politeness established initially.

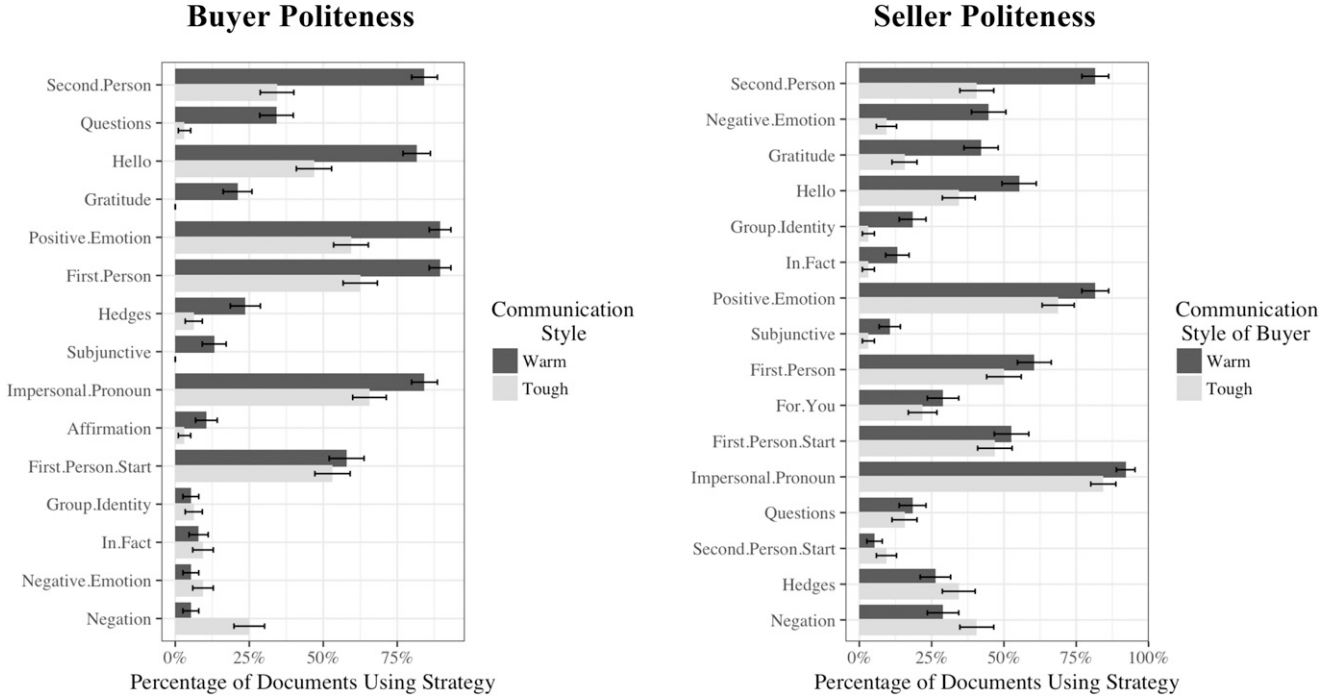
Economic Outcomes. In line with our predictions and Study 2 results, warm and friendly buyers paid a significantly higher final price for an identical item (M_{warm} = \$397.16; SD = \$75.91) compared with tough and firm buyers (M_{tough} = \$346.77; SD = \$51.83; $t(65) = 3.10$, $p = 0.003$). That is, on average, being warm and friendly cost buyers an additional \$50 or 15% of the final price. This difference was borne out in the bonuses that participants were paid. Buyers assigned to the tough and firm condition earned a significantly higher bonus (M_{tough} = \$1.43; SD = \$0.62) than buyers assigned to the warm and friendly condition (M_{warm} = \$1.04; SD = \$0.64; $t(68) = 2.56$; $p = 0.013$). Conversely, sellers who were paired with a tough and firm buyer received smaller bonuses (M_{tough} = \$0.48; SD = \$0.45) than sellers who were paired with a warm and friendly buyer (M_{warm} = \$0.97; SD = \$0.74; $t(68) = 3.24$; $p = 0.002$).

Bargaining Behavior. The transcripts from this experiment revealed how the buyers' communication style affected the negotiation dynamic during the bargaining process. In Figure 3, we visualize the 20-minute bargaining window using a panel model. That is, we assume that any offer made by a buyer or seller is a valid "standing offer" until he or she proposes a new offer or accepts the partner's offer. This allows us to calculate the average standing offer at each 10-second interval throughout the entire bargaining window (when a pair agrees to a deal, that deal amount is carried forward as their standing offer).

We found that the difference between conditions emerges almost immediately as a function of seller behavior. If we focus only on sellers' first counteroffers, we find that sellers responded to warm and friendly buyers with significantly higher counteroffers (M_{warm} = \$470.97; SD = \$122.58) than to tough and firm

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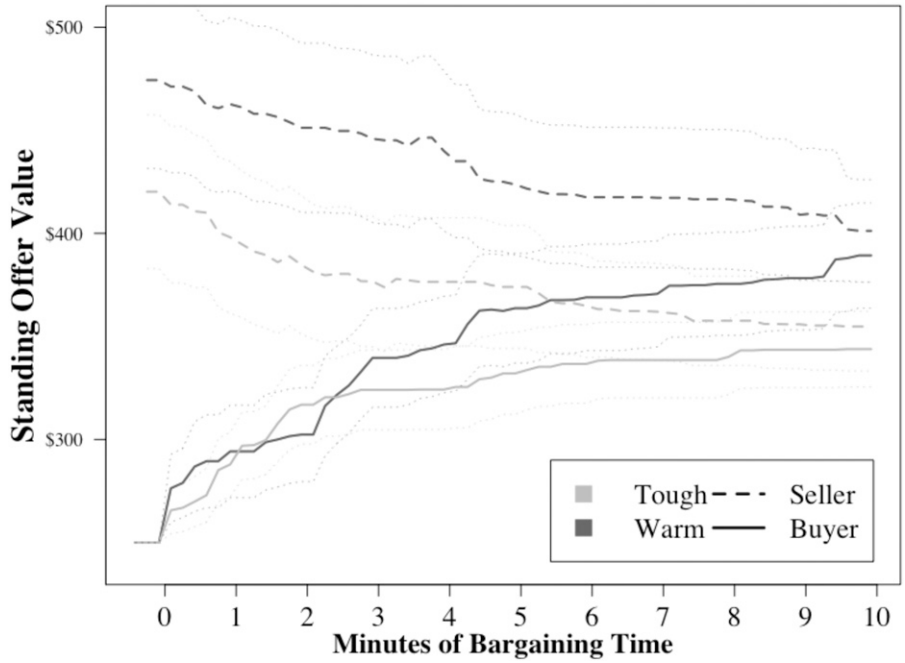
Figure 2. Politeness Features of Buyers' Initial Offers (Left Panel) and Sellers' Replies (Right Panel) in Study 3



Note. Bars show standard errors around each group mean.

buyers (M_{tough} = \$413.79; SD = \$94.19; $t(62) = 2.06$; $p = 0.044$). Although all sellers received the same initial offer of \$250, sellers who received a warm and friendly initial offer immediately asked for an additional \$57 or 14% more than sellers who had received the same offer expressed in tough and firm language.

Figure 3. Panel Model of Negotiators' Standing Offers Divided by the Participants' Role in Their Group (Buyer vs. Seller) and the Style Assigned to the Buyer in Their Group (Warm and Friendly vs. Tough and Firm Style)



Notes. Each line represents the average value of a participant group's most recent offer updated every 10 seconds throughout the 10-minute bargaining window (including the value of any deals that had been made up to that point in time). Dotted lines show 95% confidence bands around each line.

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Dyads with warm and friendly buyers also took a somewhat longer time to reach agreement (M_{warm} = 343 seconds; SD = 216) than dyads with tough and firm buyers (M_{tough} = 259 seconds; SD = 184; $t(68) = 1.74$; $p = 0.087$).

Subjective Evaluations of the Negotiation. Buyers' evaluations of their negotiation experience seemed to be affected by the communication style that they used. Specifically, warm and friendly buyers were significantly less satisfied with the final price (M_{warm} = 3.24; SD = 1.14 versus M_{tough} = 3.97; SD = 0.85; $t(65) = 2.97$, $p = 0.004$) and reported less satisfaction with the negotiation in general (M_{warm} = 3.32; SD = 1.03 versus M_{tough} = 3.87; SD = 0.86; $t(65) = 2.31$; $p = 0.024$). However, warm and friendly versus tough and firm buyers did not report a difference in interaction enjoyment (M_{warm} = 3.22; SD = 1.03; M_{tough} = 3.33; SD = 1.16; $t(65) = 0.44$; $p = .663$). A nonparametric test revealed the same results.[3]

Sellers, however, were not affected by their partners' communication style. They did not report a significant difference between negotiating with warm and friendly versus tough and firm buyers in terms of enjoyment (M_{warm} = 3.35; SD = 1.18; M_{tough} = 3.32; SD = 1.05; $t(66) = 0.11$; $p = .917$); satisfaction with the final price (M_{warm} = 3.46; SD = 1.12; M_{tough} = 3.16; SD = 1.21; $t(66) = 1.05$; $p = 0.297$); or satisfaction with the negotiation (M_{warm} = 3.70; SD = 0.81; M_{tough} = 3.42; SD = 1.09; $t(66) = 1.23$; $p = 0.224$). Again, we see the same pattern of results with a nonparametric test.[4]

Interpersonal Outcomes. Our manipulation also had little effect on the seller's interpersonal evaluations of their counterparts. Sellers indicated that were equally likely to want to partner with (M_{warm} = 3.19; SD = 1.18; M_{tough} = 3.48; SD = 0.10; $t(66) = 1.10$; $p = 0.274$) or play against the same buyer (M_{warm} = 3.24; SD = 1.14; M_{tough} = 2.81; SD = 1.20; $t(66) = 1.54$; $p = 0.129$), regardless of whether they were warm and friendly versus tough and firm.

The buyers, however, did report different evaluations of sellers between conditions. Warm and friendly buyers reported significantly higher likelihood of wanting to play on the same team as their partner in a future negotiation (M_{warm} = 3.27; SD = 1.05 versus M_{tough} = 2.63; SD = 1.19; $t(65) = 2.33$; $p = 0.023$). Similarly, warm and friendly buyers reported lower likelihood of wanting to play against their partner (M_{warm} = 2.86; SD = 1.03 versus M_{tough} = 3.70; SD = 0.99; $t(65) = 3.36$; $p = 0.001$). Nonparametric tests on both the sellers' and buyers' perspectives revealed the same pattern of results.[5]

Third Party Ratings. Finally, we examined the evaluations of dominance provided by the third party raters. We created a composite measure of perceived dominance by standardizing all eight items separately and then adding them together (the reverse-scored items were subtracted), producing a single average dominance score for each buyer offer. In line with our proposed mechanism and previous studies of dominance and communication style, we found that tough and firm buyers were perceived to be significantly more dominant ($M = 0.483$; SD = 0.533) than warm and friendly buyers ($M = -0.484$; SD = 0.303; $t(68) = 9.51$; $p < 0.001$). A nonparametric test revealed the same result.[6]

Discussion

In Study 3, we explored the effect of communication style in a live, incentive-compatible negotiation. Replicating Study 1 results, participants wrote economically equivalent offers using substantively different communication styles. Also, replicating Study 2 results, these communication styles had a significant impact on their success.

Stylistically warm and friendly negotiators ended up paying 15% more for the same item and earning lower bonus payments compared with tough and firm negotiators. Our examination of bargaining behavior indicated that the effect on sellers was rapid—sellers negotiating with warm and friendly buyers made more aggressive initial counteroffers and extracted more concessions over time. Based on third party ratings, it is arguable that sellers negotiating with warm and friendly buyers perceived their counterparts to be low in dominance and may have thereby believed that they had the ability to extract larger concessions from them.

After bargaining, there was, surprisingly, no difference in enjoyment or satisfaction for sellers who interacted with warm and friendly versus tough and firm buyers. Finally, the buyers themselves were not much affected in terms of enjoyment—tough and firm buyers enjoyed the negotiation no less than a warm and friendly buyer, but tough and firm buyers were (rightly) more satisfied with the outcomes. Thus, warm and friendly buyers did not seem to benefit economically, interpersonally, or personally.

The buyers' communication style had a significant impact on the sellers' communication style. Using our "warmth detector," we found that stylistic warmth on behalf of the buyer was initially returned in kind by the seller. However, this reciprocation did not last long, and it was not matched by any meaningful concessions—in fact, quite the opposite. This suggests a potential mechanism behind the participants' reported inclination to write warm and friendly offers in Study 1—that is, they may choose the communication style that induces the most linguistic concessions (warmth) rather than the communication style that induces the most economic concessions (toughness). However, the results from Study 1 were generated using a hypothetical scenario

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and did not identify the outcomes that participants were hoping to achieve with their communication style. In Study 4, we build on those initial results to examine lay beliefs about the relative merits of the two styles.

Study 4

In Study 1, participants reported naturally taking on a more warm and friendly communication style in a negotiation context rather than a tough and firm style. The results of Studies 2 and 3 suggest that this inclination is misguided from a purely economic point of view, because offers displayed with a tough and firm communication style elicited greater concessions from sellers. In Study 4, we explore this misalignment between objective outcomes and chosen strategy. Did participants truly think that a warm and friendly communication style would be a more effective bargaining strategy? Or were they reasonably trading off bargaining outcomes against some other potential consequence?

We answer this question in two experiments using the initial offer messages from buyers in Study 3. In Study 4a, participants evaluated these messages, one at a time, with regard to their economic and interpersonal consequences. In Study 4b, participants compared pairs of messages (one warm and friendly and one tough and firm) and were incentivized to predict which message resulted in more favorable outcomes.

Study 4a: Method

Participants. We recruited participants on Amazon's Mechanical Turk ($n = 103$; $M_{age} = 35$ years old; SD = 12 years; 59% male) to participate in a study about exploring people's negotiation styles in exchange for \$0.50. Two of these participants did not complete the study, and we included these participants' data up to the point at which they left (although our results are unchanged if we exclude them entirely).

Design and Procedure. We told participants that they would read different messages that individuals wrote in response to an online advertisement for an antique sugar bowl. Participants were told that the messages had been sent from potential buyers. Participants were further told that all buyers were offering \$250 for the sugar bowl when the market value was \$400–800. We then presented participants in Study 4a with the 90 messages that participants produced in Study 3.[7] We presented all participants with three randomly selected warm and friendly and three randomly selected tough and firm messages. Participants read and evaluated the messages one at a time in a random order.

After reading each message, participants answered four questions. Specifically, we asked them to rate how likely they thought it was that the seller would sell the sugar bowl to this particular buyer; how likely they thought it was the buyer would be able to buy the sugar bowl for a substantial discount; and how likely they thought it was that the seller would contact the buyer who sent this message when other items became available for sale. Participants answered these three questions on a five-point Likert scale from "not at all likely" to "very likely." Participants also rated how much they thought the seller would enjoy negotiating with the buyer who authored the message on a five-point Likert scale from "none at all" to "a lot." After participants read and evaluated all six messages, we collected demographic information.

Results and Discussion

The results show that participants overwhelmingly believed that the warm and friendly messages would be evaluated more positively compared with tough and firm messages on all four dependent variables. For each variable, we combined the six ratings that each participant gave using a linear mixed effects model, with participants as a random factor (Bates et al. 2015).[8] Participants believed that sellers would be more likely to sell the sugar bowl to warm and friendly buyers than to tough and firm buyers ($M_{warm} = 2.95$; SD = 1.12; $M_{tough} = 1.96$; SD = 1.02; $t(88.5) = 9.13$; $p < 0.001$) and would enjoy negotiating with warm and friendly buyers more than tough and firm buyers ($M_{warm} = 2.98$; SD = 1.14; $M_{tough} = 1.92$; SD = 1.06; $t(88.5) = 9.08$; $p < 0.001$). Furthermore, they believed that sellers would be more likely to contact warm and friendly buyers than tough and firm buyers regarding a future sale ($M_{warm} = 3.02$; SD = 1.19; $M_{tough} = 1.924$; SD = 1.05; $t(88.7) = 9.33$; $p < 0.001$). Importantly and in contrast to the behavioral results in Studies 2 and 3, participants believed that warm and friendly buyers would be more likely obtain a substantial discount on the purchase than tough and firm buyers, ($M_{warm} = 2.80$; SD = 1.13; $M_{tough} = 1.96$; SD = 1.03; $t(89.2) = 8.20$; $p < 0.001$).

Study 4b: Method

Participants. We recruited participants on Amazon's Mechanical Turk ($n = 144$; $M_{age} = 34.93$ years old; SD = 10.06 years; 59% male) to participate in a study about negotiation style in exchange for \$0.30, with a potential to earn a bonus of up to \$0.30. The 144 participants referenced above completed the entire survey, including an attention check, the main task, and the demographic questions.

Design and Procedure. Like Study 4a, participants were told the premise of the sugar bowl negotiation that was given to the participants of Study 3. In this study, however, participants were shown two messages at a time. We told them that they would read the first message sent by two different buyers and then guess which buyer earned a better final negotiation

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outcome (i.e., received a greater bonus as determined by negotiating a lower price). Participants were incentivized to win $0.10 for every guess that they made correctly. Each participant made a total of three guesses.

We used 70 messages that participants produced and were included in our analysis in Study 3 as our stimuli. Every pair of messages that were shown to participants was composed of one randomly selected warm and friendly and one randomly selected tough and firm message. However, we did not tell participants that the participants had been instructed to adopt any kind of communication style or that each pair was composed of participants who had been assigned different communication styles. Because 38 of the 70 messages were from warm and friendly buyers, we oversampled tough and firm messages so that every participant would see 3 unique tough and firm messages and 3 unique warm and friendly messages over the course of the task.

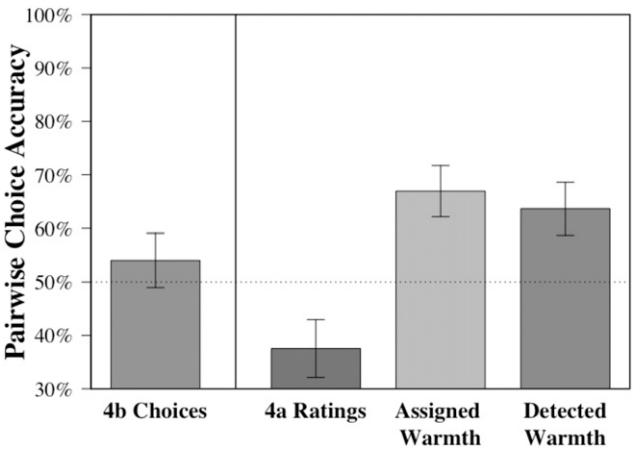
Results and Discussion

We defined negotiation success as the size of the bonus that the buyer earned: therefore, if a group did not reach any agreement, this was counted as zero bonus. For each pair, we knew, based on Study 3, which of the two messages did, in fact, earn a higher bonus (we removed cases where both buyers earned identical bonuses, although our results are identical if we include them). The question then was how well participants' pairwise choices matched that ground truth. Overall, our participants were not very accurate. Across all of their binary choices, they correctly guessed which message performed better 54.03% of the time (95% CI = 48.96%–59.10%). This was slightly but not significantly above chance performance, suggesting little (if any) insight into the messages' success.

However, an examination of participant choices suggests that they were not merely guessing randomly but instead, that they were overselecting warm and friendly messages. For example, of the 235 cases when a participant chose the warm and friendly message as the winner, their choice was correct 33% of the time. By contrast, among the 197 times that they chose the tough and firm message as the winner, they were correct 73% of the time.

For context, we can compare the accuracy of other prediction rules as applied to the same pairwise comparisons shown to these participants (see Figure 4). For example, one could simply use the condition assignment and always guess that the tough and firm message was the most successful. This strategy is more accurate (M = 66.94%; 95% CI = 62.15%–71.72%) than the one enacted by participants. We performed a similar benchmark using the warmth detector from Study 1—that is, for every pair, guessing that the message that sounded "tougher" (as judged by the algorithm) would be more successful. This strategy also performed well (M = 63.39%; 95% CI = 58.45%–68.33%). Finally, we wanted to see if the average ratings from Study 4a would be any more accurate. In this case, we would guess that whatever message from each pair had a higher average rating on the "likely to obtain a substantial discount" question was the most successful. This was the least accurate of all (M = 37.54%; 95% CI = 32.13%–42.95%). These comparisons show that, although success could be predicted from the communication style of the buyers' initial offers, participants did not have a mental model of negotiations that let them capitalize on that information.

Figure 4. Accuracy of Participants' Predictions of Negotiation Success from Study 4b Stimuli



Note. We compared their pairwise choices with various decision rules based on condition assignment, detected warmth, and previous participant ratings of the different messages.

General Discussion

This research focused on a novel question: can strategic communication style affect negotiation outcomes in the face of consistently executed bargaining behavior? Our results suggest an affirmative answer. In the four studies presented here, we show that, in distributive negotiations where the value of the first offer was fixed, being tough and firm took less effort than being warm and friendly and resulted in better financial outcomes at no apparent social cost—an effect that negotiators were inaccurate in predicting.

In Study 1, we found that individuals enacted vastly different styles of communication when instructed to be warm and friendly versus tough and firm in a negotiation, with warm and friendly messages generally taking more effort to compose than tough and firm messages (as evidenced by longer average word counts). We developed a natural language processing algorithm and trained it to distinguish warm and friendly versus tough and firm messages. The algorithm enabled us to empirically document that the primary

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difference between these messages was the level of politeness that the authors used.

Study 2 examined the effects of communication style in a field context using real transactions. When the buyer sent the seller an offer delivered in tough and firm language, they were more likely to obtain a better discount than when they sent an equivalent offer delivered in warm and friendly language.

Study 3 used a live incentive compatible laboratory negotiation to document the entire negotiation process (instead of simply the first offer and counteroffer as we did in Study 2). Tough and firm negotiators achieved higher economic gains at no discernable social costs, because counterparts indicated no difference in enjoyment or satisfaction when working with a warm and friendly versus tough and firm negotiator. Furthermore, the economic benefits of sending a tough and firm message were driven by the message recipients, who made greater concessions than the recipients of a warm and friendly message. An external group of raters found the initial messages sent by warm and friendly negotiators to be lower in dominance than those composed by tough and firm negotiators, supporting our theory and previous research that perceptions of low dominance in a counterpart are associated with more aggressive bargaining behavior.

Finally, Study 4 showed that individuals were unaware of the benefits of a tough and firm communication style and instead, overwhelmingly believed that counterparts would respond more favorably to warm and friendly negotiators in terms of both greater liking and greater concessions. In sum, contrary to lay opinion, a warm and friendly communication style yielded no economic benefit for negotiators in a distributive negotiation and surprisingly, no detectable interpersonal benefit.

Theoretical and Practical Implications

We see our findings as yielding three larger implications for both negotiation scholarship and practice. The first is that communication style, above and beyond economic behavior, affects negotiation outcomes. We contribute to an emerging body of work that focuses on the importance of how offers are delivered in a negotiation separate from their economic value, such as the way in which offers are justified or framed (Bowles and Babcock 2013, Trötschel et al. 2015, Lee and Ames 2017). Specifically, our research takes a novel approach in looking at the effect of warm and friendly versus tough and firm communication styles. Prior negotiation research on the consequences of a cooperative negotiation style did not focus on the effects of negotiation style controlling for economic bargaining behavior (Pruitt and Lewis 1975; Ben-Yoav and Pruitt 1984; Weingart et al. 1993; De Dreu et al. 1998, 2000), and therefore, the question of whether style single handedly affects individual outcomes has remained unanswered. We address this gap in the literature by focusing on distributive negotiations, holding first offers constant, and tracking concession patterns.

The second is that, when individuals believe that enacting warmth will be helpful in a negotiation, they do so by increasing their politeness, which causes them to be perceived by their counterparts as having lower dominance. This finding advances long-standing scholarship on politeness by studying it in a negotiation context and contributes to emerging work on natural language processing by providing a tool other scholars can utilize to detect warmth in conversational text. Although politeness is a universal construct readily recognized by human communicators, it can be expressed differently in different contexts (Brown and Levinson 1987). We selected a wide set of syntactic, domain-general linguistic features guided by prior research on politeness (Danescu-Niculescu-Mizil et al. 2013, Voigt et al. 2017). Our approach allowed us to empirically curate that feature set for our particular domain of negotiations. Warm and friendly messages were more likely to use salutations, express gratitude, make more indirect requests and statements, and use more qualifying language. Furthermore, this model performed well in a hold-out test using data from a different negotiation scenario, suggesting evidence for context generality.

Prior work on the role of politeness in organizations and society at large has posited that individuals of low power are more likely to use polite language (Brown and Levinson 1987, Danescu-Niculescu-Mizil et al. 2013, Voigt et al. 2017). In the context of a distributive negotiation, such as a buyer/seller context, where power is ambiguous, high levels of politeness may be interpreted as low dominance and a signal of low power. Prior research has found that, although power can be latent, dominance can manifest itself through communication (Aries et al. 1983, Burgoon and Dunbar 2000, Dunbar and Burgoon 2005). Indeed, in Study 3, external raters perceived communications sent by warm and friendly negotiators to be lower in dominance than messages sent by tough and firm negotiators, although both made the same monetary offer. Given that third party and participant raters have been found to report highly correlated perceptions of interpersonal dominance (Dunbar et al. 2003), it is likely that counterparts to warm and friendly negotiators perceived low dominance from their partner, a signal of low power, and therefore, they responded by taking a more dominant posture, offering fewer concessions and standing firm on demands.

The third is the broken mental model that lay negotiators have regarding the consequence of taking on a warm and friendly communication style. This finding contributes to scholarship on social perceptions of

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warmth by studying its effects in a negotiation context and provides practical implications to negotiators. We find that a warm and friendly communication style results in lower economic outcomes compared with a tough and firm communication style. This finding contributes to various and conflicting literature predicting how warmth is perceived and reciprocated by others in different social settings (Gouldner 1960, Homans 1961, Adams 1965, Gallupe et al. 1991, Cialdini 1993, Mintzberg et al. 1996, Lovelace et al. 2001, Wojciszke 2005, Abele and Wojciske 2007, Fiske et al. 2007) by specifically showcasing the effect of warmth in a negotiation context.

The faulty beliefs regarding the benefits of a warm and friendly communication style may be driven by the fact that negotiation success can be measured by several metrics, some of which are more difficult to observe than others. Negotiators who deploy a particular communication style can immediately observe the reciprocal communication style returned by their counterpart. Indeed, in Studies 2 and 3, we saw that buyers in the warm and friendly condition received seller messages that were warmer than buyers in the tough and firm condition. More difficult to observe are the judgments that counterparts are making about each other, how those vary as a function of communication style, and the ultimate consequences to economic behavior. Interestingly, in Study 3, sellers did not evaluate warm and friendly buyers more favorably than tough and firm buyers, although in Study 4, participants predicted that senders of warm messages would be evaluated more positively. Finally, a speaker's choice of communication style is typically driven by situational norms (Lakoff 1973, Clark and Schunk 1980, Brown and Levinson 1987). This means that the natural variation in warmth and toughness is often endogenous to many contextual and economic factors that also affect outcomes. Therefore, there are rarely occasions—like ours—when negotiators are able to exogenously vary the warmth of their offers and observe the consequences.

Practically speaking, negotiators may be constrained in their economic behavior but have the flexibility to enact a variety of communication styles. The conflict between coming across as warm and friendly versus tough and firm is a common struggle faced by negotiators. By understanding the costs of communicating warmth in a competitive context, such as a distributive negotiation, negotiators will better know how they can strategically use communication style to their benefit.

We focused on distributive negotiations, where claiming value is the goal of each of the parties at the table. However, many negotiations involve both value claiming and value creation, and they are thus integrative in nature. We believe that many of our findings will still apply to such bargaining situations. More specifically, because in a distributive context, the size of the pie is fixed, the only economic outcome that can be measured is the proportion of those resources captured by either party. By contrast, in an integrative context, there are at least two measures: the extent to which the parties were able to expand the size of the pie and how the final sum of resources is divided at the end. Prior negotiation research that manipulated related constructs, such as cooperation versus competition, focused primarily on the first measure (i.e., the ability of the negotiators to expand the pie of resources). However, our results suggest that, although warmer negotiators may be more effective at expanding the pie, they may still pay a price when the pie is being divided. Thus, there may be a tradeoff between the extent to which warmth in communication enables the expansion of joint resources versus creates individual-level liability. Future research should address this question by studying integrative negotiation contexts where warmth in communication is manipulated orthogonally from the ability to create integrative potential.

Future research should also address moderators of our effect. For example, gender may play an important role in how a warm and friendly versus tough and firm communication style is received. Prior research has shown that women get penalized for acting in ways that may be seen as stereotypically male (Kray and Thompson 2004, Babcock and Laschever 2009, Amanatullah and Morris 2010). Thus, the benefits of a tough and firm communication style may be lessened when the speaker is known to be female. In our study designs, we side stepped this issue by selecting an explicitly gender-neutral name for Study 2 ("Riley"—statistically one of the most gender-neutral first names given to both boys and girls through 2013 according to the Social Security Administration) and keeping negotiators anonymous in Studies 3 and 4.

Additionally, we observed our effect based on single emails sent in Study 2 and immediately in the first set of counteroffers made in Study 3. These effects based on taking on a particular style early in a negotiation raise important questions about the role of time. For example, might it be beneficial to begin the negotiation in a warm and friendly manner to gather information and "increase the pie" and then shift into a tougher mode to claim the most resources? Or should one begin by acting tough and firm (as in our experiments) and finish warmly to ensure a positive final impression? Future research should explicitly address these

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important questions as well as other factors that may fundamentally change the interpretation and situational appropriateness of a warm and friendly versus tough and firm communication style.

Conclusion

An extensive literature has addressed the various strategic and tactical choices that negotiators can make to further their aims. Much of this literature has focused on economic bargaining behavior, carefully considering what offers should be made, which information should be revealed, the size and timing of concessions, and reasons for walking away. However, in addition to choices about bargaining, negotiators also have a large number of choices with regard to how to communicate with their counterpart. Our teaching experience suggests that one of the most pressing questions that students face is whether their communication style should exude warmth or toughness. Our results strongly suggest that the answer is the latter. Although there is still much to be explored with regard to the effect of communication style on negotiation outcomes, the evidence suggests that negotiators could save effort, achieve better economic outcomes, and experience greater satisfaction by toughening up.

Acknowledgments

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Appendix A. Study 1 Scenario Stimuli

Figure A.1. Craigslist Posting



Note. In Study 1, participants pretended to respond to this ad in their writing task, which was copied from a real Craigslist post.

Appendix B. Politeness Detector Features

Table B.1 lists all of the features that were used for constructing the warmth detection model in Study 1. These features were primarily drawn from two recent papers in

Table B.1. Linguistic Markers for Detecting Warmth

Feature	Description	Example
Formalities		
Hello	"Hi," "hello," "hey"	"*Hi*, how are you today?"
Goodbye	"Goodbye," "bye," "see you later"	"That's my best offer. *Bye*!"
Please start	Please to start sentence	"*Please* let me know if that works"
Please	Please midsentence	"Let me know if that works, *please*"
Gratitude	"thank you," "I appreciate," etc.	"*Thanks* for your interest"
Apologies	"Sorry," "oops," "excuse me," etc.	"I'm *sorry* for being so blunt"
Formal title	"Sir," "madam," "mister," etc.	"*Sir*, that is quite an offer"
Informal title	"Buddy," "chief," "boss," etc.	"*Dude*, that is quite an offer"
Swearing	Vulgarity of all sorts (Linguistic Inquiry and Word Count [LIWC])	"The *dang* price is too high"
Action phrases		
Subjunctive	Indirect request	"*Could you* lower the price?"
Indicative	Direct request	"*Can you* lower the price?"
Bare command	Unconjugated verb to start sentence	"*Lower* the price for me"
Let me know	"Let me know"	"*Let me know* if that works"
Affirmation	Direct agreement at start of sentence	"*Cool*, that works for me"
Conjunction start	Begin sentence with conjunction	"*And* if that works for you"
Reasoning	Explicit reference to reasons	"I want to *explain* my offer price"
Reassurance	Minimizing other's problems	"*Don't worry*, we're still on track"
Ask agency	Request an action for self	"*Let me* step back for a minute"
Give agency	Suggest an action for other	"I want to *let you* come out ahead"

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Table B.1. (Continued)

Feature	Description	Example
Qualifiers		
Hedges	Indicators of uncertainty	"I *might* take the deal"
In fact	Indicators of certainty	"This is *definitely* a good idea"
Positive	Positive emotion words	"That is a *great* deal"
Negative	Negative emotion words	"That is a *bad* deal"
Negation	Contradiction words (LIWC)	"This *cannot* be your best offer"
Questions	Question words to start sentence	"*Why* did you settle on that value?"
By the way	"By the way"	"*By the way*, my old offer stands"
Adverbial just	Modifying a quantity with "just"	"It is *just* enough to be worth it"
Filler pause	"Er," "um," "uh," "sigh," etc.	"That offer is, *um*, on the low side"
Pronouns		
For me	"For me"	"It would be great *for me*"
For you	"For you"	"It would be great *for you*"
Group identity	First person plural pronouns	"it's a good deal for both of *us*"
First person	First person singular midsentence	"It would benefit *me*, as well"
Second person	Second person midsentence	"It would benefit *you*, as well"
First person start	First person singular to start sentence	"*I* would take that deal"
Second person start	Second person to start sentence	"*You* should take that deal"
Impersonal pronoun	Nonperson referents (LIWC)	"*That* is a deal"

computational linguistics (Danescu-Niculescu-Mizil et al. 2013, Voigt et al. 2017) that summarized long bodies of work on linguistic markers of respect and politeness. We only removed some very context-specific features from their original list (e.g., "keep your hands on the wheel").

Appendix C. Sample Inclusion Rules in Study 2

Study 2 was a natural field experiment in which participants were selected from people who had posted a smartphone for sale on Craigslist.com during the study window. We had a research assistant crawl the websites of the top 15 markets in the United States to determine which participants would be included in the study. Some inclusion criteria could be automated in the search function of the Craigslist.com website (e.g., distance from city center), whereas other criteria had to be judged by the research assistant in the moment based on the contents of the ad (e.g., is this seller a business or individual?).

Here, we present the entire document for the research assistants, which provided a guide to the files associated with the Gmail account, the step-by-step procedure for each "recruitment" session, and details on inclusion criteria.

Google Drive Files

Use a Chrome incognito window so that you can switch between Google Drive and Gmail. There are four files in the drive (two sheets and two documents) and a folder.

(a) "City Logs" has links to every Craigslist search. One row for every city. Here, you will also enter the cities you visited on each day of the experiment.

(b) "Price Logs" has the offer price calculator and condition assignment. One row for every email sent. You will enter the asking price and the seller's email address.

(c) "Messages" backs up the text for our email messages in case they get deleted or overwritten and you need to reenter them.

(d) "Instructions" has the protocol for the study.

(e) "Saved Pages" will hold the saved web pages from every Craigslist post.

Session Workflow

The work is composed of daily "sessions," where you look through "searches" to find eligible "sellers." They are nested loops—each search loop will contain multiple sellers, and each session loop will contain multiple searches.

For each session {

(a) Log into the Gmail account. If anyone responded the day before, tell them "I'm sorry, I decided to buy a different phone. Thank you for the reply."

(b) Open "City Logs" and find the search link that has been pent up the longest (i.e., longest time since being clicked). Open that link, and tick off a box to let us know you looked at it on that day.

For each search {

(c) Look through the posts on the search page for eligible sellers (see below for definition of "eligible") who have posted since the last time that you visited this page. Every time you find an eligible seller, work through the seller loop.

For each seller {

(d) Add their email address to the "Price Logs" spreadsheet on the next available row.

(e) Copy the identification number from that row. Go back to the Craigslist post page, right click in the whitespace, and choose "save as." The prompt should indicate that you are saving a "Webpage, complete." Save the page in a temporary folder, and use the identification number from "Price Logs" as the file name.

(f) Enter them into the corresponding row in Price Logs, which will calculate the offer price.

(g) Open "canned response" in Gmail. Match this post's assigned condition in Price Logs.

(h) Replace the subject line with "iPhone posted for sale?". Replace {***PRICE***} with the offer price. Paste the seller's email into the "To" line.

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(i) Double check to make sure that the email, offer price, assigned condition, and saved page all match the correct spreadsheet row. Then press send!

} after each seller...

(j) Write a comment in the Price Logs in case there was anything atypical or suspicious in the interaction or if the email bounced back for any reason.

(k) Go back to the search page and find the next eligible seller.

} after each search...

(l) Go back to the City Logs spreadsheet and find the next search.

} after each session...

(m) Take the folder of saved Craigslist pages and add it to the folder of "Saved Pages" on Google Drive. Make sure that the upload finishes before logging out!

What Qualifies as an "Eligible Seller"?

This is the hardest part of the job by far. You will make judgment calls. A few of them will be wrong. We are hoping that the vast majority will be right.

Must have been posted/updated within the last 48 hours. No limit on "time since posted."

Must have a real picture of the actual phone for sale.

Only used iPhone 6, 7, or SE models.

Posted by personal owners, not businesses—businesses often include storefront pickup locations, post many different phones.

Only single-phone posts. Multiple phones are likely a business or at the very least confusing.

Must accept email! No posts that say "call or text only" and/or include a phone number. Also avoid people who request using their personal email rather than the Craigslist email.

Damage limited to scratches. No cracks, water damage, jailbroken, locked phones, etc.

AVOID posts that say "nonnegotiable" or "firm price."

AVOID posts that insist on delivery/shipping—must be open to in-person pickups.

AVOID any captcha-like instructions (e.g., "please include 1 + 1 = 2 in the subject line").

Appendix D. Buyer Messages in Study 2

Every participant in Study 2 received one of six prewritten messages, which always included a requested discount of 80% of the asking price in the advertisement. We created these messages by writing three generic offers and then adjusting the communication style of each message to be either warm and friendly or tough and firm in accordance with the linguistic features analyses in Study 1. Below, **tough and firm features are in bold**, whereas *warm and friendly features are in italics.*

[**I saw**—*Hi there—I'm happy to see]* your post about the phone[.—**!**] This iPhone matches what I wanted to buy [*you must have great taste:)]*. [**I'm willing to pay**—*Is there any chance you could sell it to me for]* {80% of listed price}? Given the prices on similar phones currently for sale, [**I'm firm on that price.**—*I would really appreciate it, and it would help me out a lot!]* I live in the area, and I can *[come to]* meet you [**wherever**—*anywhere that is convenient for you]. [Please]* let me know by tomorrow if the price is ok for you *[***or else I'll move on**—*and thank you so much for your time and consideration. Hope you have a wonderful day].*

*[-**Riley**—-Sincerely, Riley]*

[*Hello! I liked your listing and*] I am interested in buying the used iPhone. However, the asking price is too high for me [*even though you clearly took care of it*]. Instead, [**I am offering to pay**—*would you be willing to accept*] {80% of listed price}[.—*?*] Does that work? If so, I look forward to doing business with you. [**If you want to sell your phone**—*If you will be okay with this price*], let me know by tomorrow, and I can pay in cash when I pick it up. [**I am flexible on** — *I can meet you at a]* time and place [*that is convenient for you].* I look forward to your [**acceptance**—*consideration*] of my offer. [*Thanks again!]*

*[-**Riley**—-All the best, Riley]*

[Hello,] I was looking at your post, and this phone [**could meet my needs.—** *is the one I've been waiting for!*] I would be interested in [**taking this off your hands**—*purchasing your beautiful phone*]. I [**am willing to**—*am happy to*] pick it up from you, but [*unfortunately*] your asking price is too high for [**what you are offering**—*me*]. I [**am willing**—*can only afford*] to pay {80% of listed price} in cash for the phone. That's my absolute limit [**nonnegotiable**—*I'm sorry to say*]. And I can meet you [**any time**—*whenever is most convenient for your schedule*]. Let me know if this will work for you [.—*and have a great day]*

*[-**Riley**—-Thank you, Riley]*

Appendix E. Participant Instructions in Study 3

These are the instructions that were given to participants in the negotiation exercise from Study 3. Buyers and sellers saw different instructions throughout implemented through the software itself and adapted from the sugar bowl case. Additionally, buyers were divided into two conditions (warm and friendly versus tough and firm) before the final instructions screen.

First Screen to Sellers

During this exercise, you will enter into a negotiation with another participant. You are going to play the role of the seller, and your partner will play the role of the buyer.

The interaction will be completely anonymous.

The negotiation will be structured in several parts. First, you will have a few minutes to read through the instructions. The instructions begin on the next screen.

[There will be an intervening screen where they get paired up.]

Second Screen to Sellers

Imagine you are an antique dealer who primarily does business online. Today, you have set up a booth at a "high-end" antique fair. You use the marketplace to sell merchandise that you've been unable to sell elsewhere. Many of the shoppers are savvy bargain hunters, whereas others are relatively ignorant and will happily overpay for items that will serve as conversation pieces in their homes.

Business today has been steady but not spectacular. Happily, a buyer seems to have taken an interest in a small silver sugar bowl that could help make your trip to this antique fair worthwhile.

In reviewing your inventory, you notice that this piece was originally purchased for a local client after an exhaustive search, but the client refused to accept the sugar bowl because of a minor blemish. You paid $350 to acquire the sugar bowl.

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Your original client was to pay $650. The market value for such a bowl widely varies from $400 to $800. At this stage, you'd be happy just getting rid of it. You listed the sugar bowl twice online but had no bids over $300.

As for the bowl itself, your research indicated that this piece was crafted in the late 1750s by an artist named Langlands who was reputed to be a highly skilled and detail-oriented craftsman in New England.

You would like to sell the sugar bowl for at least what you paid. Anything above $350 represents profit (not factoring in all of the time and effort that you've invested!), and you also know online buyers would pay as much as $300. You have not marked a price on the sugar bowl. Everything is negotiable. It appears that the person looking at the bowl is clearly able to pay. . .so it's time to close the sale!

Third Screen to Sellers

On the next page, you will be begin to negotiate with this potential buyer. This buyer will first send you a message. Please think about your negotiation strategy as you await the buyer's message.

A bonus is available depending on your final negotiated price with the buyer. If you are able to sell the sugar bowl for a price higher than $300, you will be awarded a bonus. For every $10 over $300 you sell the bowl for, you will receive a bonus of $0.10.

For example, if you sell the bowl for $350, you will receive $0.50 as a bonus. The final price will be rounded up or down to the nearest $10. For example, if you sell the bowl for $355, the final price will be $360.

If you and the buyer are unable to agree on a price, no bonus will be available to either of you.

First Screen to Buyers

During this exercise, you will enter into a negotiation with another participant. You are going to play the role of the buyer, and your partner will play the role of the seller.

The interaction will be completely anonymous.

The negotiation will be structured in several parts. First, you will have a few minutes to read through the instructions before you send your first message to the seller. The instructions begin on the next screen.

[There will be an intervening screen where they get paired up.]

Second Screen to Buyers

Imagine that you are browsing at a local antique fair and you spotted THE ITEM for which you have spent years searching! As a child, a relative gave you a silver tea set that, in its complete four-piece setting, may be valued as high as $2,000. Unfortunately, your set is not complete, because you are missing the sugar bowl.

An appraiser suggested that, through an auction house, you could sell your current set for $1,200 (although they are less interested in incomplete sets). With the sugar bowl, you might be looking at around $1,700.

You examined the sugar bowl very carefully, and you are absolutely certain that this is YOUR piece. It matches the artist, location, and setting style of your set. You are 100% certain that this is the piece you need. You've searched for this bowl on the internet and in specialty magazines, but the sugar bowl seems to be the hardest piece to find. You've seen wide-ranging appraisals listing the sugar bowl at $400–$800. Until now, it has been impossible to find the item for sale on its own.

You realize that you must seize the opportunity. In addition to the significant monetary value that the bowl would add to your set, there is a high level of sentiment involved. Based upon the appraisal, you could pay up to $500 for the piece and still show a net gain. You have $600 in your checking account, and if necessary, you could get a certified check drawn up this afternoon.

The seller has seen your interest in the piece. It's undoubtedly for sale, but at what price? Prices at antique fairs are generally negotiable.

Third Screen to Buyers

On the next page, you will be begin to negotiate with this seller. You are going to send the first message.

A bonus is available depending on your final negotiated price with the seller. If you are able to buy the sugar bowl for a price lower than $500, you will be awarded a bonus. For every $10 under $500 you buy the bowl for, you will receive a bonus of $0.10.

For example, if you buy the bowl for $350, you will receive $1.50 as a bonus. The final price will be rounded up or down to the nearest $10. For example, if you buy the bowl for $355, the final price will be $360.

If you and the seller are unable to agree on a price, no bonus will be available to either of you.

<Buyers will be randomized to be warm and friendly versus tough and firm.>

Fourth Screen to Warm Buyers

You must now send your first message to the seller.

Extensive research on negotiations has shown that buyers who come across as WARM and FRIENDLY get better deals than buyers who come across as tough and firm negotiators.

To get the first best price, in your first message to the seller, offer $250 for the sugar bowl and phrase your message to be as WARM and FRIENDLY as possible.

You have two minutes from now to send the response.

[Buyer writes first message to the seller into a text box (B1).]

Fourth Screen to Tough Buyers

You must now send your first message to the seller.

Extensive research on negotiations has shown that buyers who come across as TOUGH and FIRM get better deals than buyers who come across as warm and friendly negotiators.

To get the first best price, in your first message to the seller, offer $250 for the sugar bowl and phrase your message to be as TOUGH and FIRM as possible.

You have two minutes from now to send the response.

[Buyer writes first message to the seller into a text box (B1).]

Appendix F. Perceptions of Dominance Scale Used in Study 3

These questions were given to a set of third party raters who evaluated the buyers' initial offers based on these eight traits. The scale items were adopted from Tiedens et al. (2007). The last four items are reverse scored, and the eight questions were shown in a random order.

Based on this message, how dominant does this buyer seem?

Based on this message, how assertive does this buyer seem?

Based on this message, how domineering does this buyer seem?

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Based on this message, how forceful does this buyer seem?

Based on this message, how submissive does this buyer seem?

Based on this message, how unbold does this buyer seem?

Based on this message, how meek does this buyer seem?

Based on this message, how unaggressive does this buyer seem?

Endnotes

[1] We have received Institutional Review Board approval for all of our studies. For each study, we report how we determined our sample size, all data exclusions, all manipulations, and all measures. The exact data and code from each study are available as online supplemental material stored anonymously on the Open Science Framework at https://osf.io/t7sd6/?view_only=8311b8ec5ced4c6eb8db3eb9bdafea98.

[2] A Mann–Whitney U test revealed that the number of participants who reported that the messages that they wrote in the study would be about the same in warmth as ones that they would write in real life was significantly greater for participants in the warm and friendly condition ($MDN_{warm} = 3$; mean rank = 243.35) compared with participants in the tough and firm condition ($MDN_{tough} = 2$; mean rank = 158.44; $U = 11{,}587.00$; $Z = -7.96$; $p < 0.001$).

[3] A Mann–Whitney U test revealed that tough and firm buyers were significantly more satisfied with the final price ($MDN_{tough} = 4$; mean rank = 40.83 versus $MDN_{warm} = 4$; mean rank = 28.46; $U = 350.00$; $Z = -2.78$; $p = 0.005$) and reported greater satisfaction with the negotiation in general ($MDN_{tough} = 4$; mean rank = 39.53 versus $MDN_{warm} = 4$; mean rank = 29.51; $U = 389.00$; $Z = -2.24$; $p = 0.02$). However, warm and friendly versus tough and firm buyers did not report a difference in interaction enjoyment ($MDN_{warm} = 3$; mean rank = 32.64 versus $MDN_{tough} = 3.5$; mean rank = 35.68; $U = 504.50$; $Z = -0.66$; $p = ns$).

[4] A Mann–Whitney U test also showed that sellers did not report a significant difference between negotiating with warm and friendly versus tough and firm buyers in terms of enjoyment ($MDN_{warm} = 4$; mean rank = 35.05 versus $MDN_{tough} = 3$; mean rank = 33.84; $U = 553.00$; $Z = -0.26$; $p = ns$), satisfaction with the final price ($MDN_{warm} = 4$; mean rank = 36.57 versus $MDN_{tough} = 3$; mean rank = 32.03; $U = 497.00$; $Z = -0.98$; $p = ns$), or satisfaction with the negotiation ($MDN_{warm} = 4$; mean rank = 36.55 versus $MDN_{tough} = 4$; mean rank = 32.05; $U = 497.50$; $Z = -1.00$; $p = ns$).

[5] A Mann–Whitney U test indicated that sellers were equally likely to want to partner with ($MDN_{warm} = 3$; mean rank = 32.45 versus $MDN_{tough} = 4$; mean rank = 36.95; $U = 497.50$; $Z = -0.98$; $p = ns$) or play against the same buyer ($MDN_{warm} = 3$; mean rank = 37.58 versus $MDN_{tough} = 3$; mean rank = 30.82; $U = 459.50$; $Z = -1.46$; $p = ns$), regardless of whether they were warm and friendly versus tough and firm. Warm and friendly buyers reported significantly higher likelihood of wanting to play on the same team as their partner in a future negotiation ($MDN_{warm} = 3$; mean rank = 38.55 versus $MDN_{tough} = 2.5$; mean rank = 28.38; $U = 386.50$; $Z = -2.20$; $p = 0.03$). Similarly, warm and friendly buyers reported lower likelihood of wanting to play against their partner ($MDN_{warm} = 3$; mean rank = 27.23 versus $MDN_{tough} = 4$; mean rank = 42.35; $U = 304.50$; $Z = -3.29$; $p = 0.001$).

[6] A Mann–Whitney U test revealed that tough and firm buyers were perceived to be significantly more dominant ($MDN_{tough} = 4.77$; mean rank = 52.44) than warm and friendly buyers ($MDN_{warm} = 3.44$; mean rank = 21.24; $U = 66.00$; $Z = -6.39$; $p < 0.001$).

[7] We used all messages produced in Study 3 except for eight that did not offer the correct $250 amount for the sugar bowl. Our analyses below are restricted to the 70 messages that were included for analysis in Study 3; however, we confirm that the results are unchanged if we perform our analyses on all 90 messages that were used in the study protocol.

[8] An ordered logit model produced the same results on all four measures. Specifically, participants believed that sellers would be more likely to sell to warm and friendly buyers than to tough and firm buyers ($B = 1.99$; $SE\ B = 0.18$; $Z = 11.33$; $p < 0.001$) and would enjoy negotiating with warm and friendly buyers more than tough and firm buyers ($B = 1.93$; $SE\ B = 0.17$; $Z = 11.29$; $p < 0.001$). Participants believed that sellers would be more likely to contact warm and friendly buyers than tough and firm buyers for a future sale ($B = 2.01$; $SE\ B = 0.17$; $Z = 11.53$; $p < 0.001$). Participants also believed that warm and friendly buyers would be more likely to obtain a substantial discount than tough and firm buyers ($B = 1.76$; $SE\ B = 0.17$; $Z = 10.14$; $p < 0.001$).

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